

We claim:

1. A method for demultiplexing video images in a video stream, the video images produced by a plurality of cameras, the method comprising:
  - receiving at least a portion of the video stream composed of a
  - 5 plurality of video images in a processor;
  - parsing a first video image from the video stream;
  - parsing a second video image from the video stream;
  - determining an amount of mismatch between the first and second
  - video image;
  - 10 if the mismatch is below a mismatch threshold, assigning the first and second video images to a first channel.
2. The method according to claim 1, wherein the first channel includes a memory storage location for storing video images.
3. The method according to claim 1, wherein the first channel is associated
- 15 with a first camera.
4. The method according to claim 1, wherein if the mismatch is above a mismatch threshold, assigning the first video image to a first channel and the second video image to a second channel.
5. The method according to claim 4, wherein the second channel is associated
- 20 with a second camera.
6. The method according to claim 4, wherein after each channel associated with a camera has been assigned a video image,
  - comparing a new video image from the video stream with at least
  - one video image from each channel;
  - 25 determining an amount of mismatch between the new video image and the at least one video image from each channel; and
  - assigning the new video image to a channel having the lowest mismatch.

7. The method according to claim 6, wherein if the lowest mismatch is above a discard threshold, then discarding the new video image rather than assigning the new video image to a channel.
8. The method according to claim 4, further comprising:
  - 5                    comparing a third video image to the first and the second video images to determine a first and a second mismatch;  
                     if the first and second mismatches are above a mismatch threshold assigning the third video image to a third channel.
9. The method according to claim 4, further comprising:
  - 10                  comparing a third video image to the first and the second video images to determine a first and a second mismatch;  
                     if the first mismatch and second mismatches are below a mismatch threshold, assigning the third video image to the channel associated with the lower mismatch.
10. The method according to claim 4, further comprising:
  - 15                  comparing a third video image to the first and the second video images to determine a first and second mismatch;  
                     if both the first and the second mismatches are above a discard threshold, discarding the third video image.
11. The method according to claim 4, wherein each channel is associated with a camera.
12. The method according to claim 1, further comprising:
  - providing the number of cameras to the processor.
13. A method for demultiplexing an image stream having a plurality of  
25                    images, the method comprising:
  - comparing each new image within the image stream to a representative image associated with a camera to determine a mismatch value;

if each of the mismatch values are above a mismatch threshold,  
associating the new image with a new camera.

14. A method according to claim 13, wherein

5 if any of the mismatch values are below the mismatch threshold, selecting  
the lowest mismatch value and associating the new video image with the  
camera associated with the lowest mismatch value.

15. A method according to claim 14, wherein if the mismatch values are all  
above a discard level, discarding the new video image.

16. A method according to claim 14 wherein after a predetermined number  
10 of video images are assigned to a particular camera, the total number of  
cameras can be determined.

17. The method according to claim 1, wherein channel assignment is  
performed in real-time.

18. The method according to claim 1, wherein the digital image stream is  
15 parsed and the video images are assigned to a channel in real-time

19. The method according to claim 1, wherein the first video image and the  
second video image are sub-sampled prior to comparison.

20. The method according to claim 1, wherein if the video image stream  
contains header information, discarding the header information.

20 21. The method according to claim 1, further comprising:  
providing a user interface for setting the mismatch level;  
receiving user input of the mismatch level.

22. The method according to claim 1, further comprising:  
providing a user interface for setting the discard level;  
25 receiving user input of the discard level.

23. The method according to claim 15, further comprising:  
allowing a user to assign a video image to a camera even though the  
mismatch is above the discard error level.

24. The method according to claim 15, wherein a user may select video images to discard prior to comparison.

25. The method according to claim 15, wherein if a video image is associated with a camera and a new video image is also associated with the camera,  
5 the new video image becomes the reference image for all further comparisons.

26. The method according to claim 13, wherein a user may clear all reference images and begin the process of assigning a video image to each camera.

27. The method according to claim 26, further comprising:

10 automatically adjusting brightness within the reference video images and the new video image so that brightness levels are substantially similar prior to comparison.

28. The method according to claim 13, further comprising:

15 selecting a portion of the reference images to be used for comparison to a same portion of the new video image.

29. A computer program product containing computer code thereon readable by a computer for demultiplexing video images in a video stream, the video images produced by a plurality of cameras, the computer code  
20 comprising:

computer code for sequentially receiving the video stream composed of a plurality of video images in a processor;

computer code for parsing a first video image from the video stream;

25 computer code parsing a second video image from the video stream;

computer code for determining an amount of mismatch between the first and second video image;

computer code for assigning the first and second video images to a first channel if the mismatch is below a mismatch threshold.

30. The computer program product according to claim 29, wherein in the  
5 computer code for assigning, the computer code assigns the first and second video images to a memory storage location.
31. The computer program product according to claim 29, wherein the first channel is associated with a first camera.
32. The computer program product according to claim 29, further comprising:  
10 computer code for assigning the first video image to a first channel and the second video image to a second channel if the mismatch is above a mismatch threshold.
33. The computer program product according to claim 32, wherein the second channel is associated with a second camera.
- 15 34. The computer program product according to claim 32,  
computer code for comparing a new video image from the video stream with at least one video image from each channel after each channel associated with a camera has been assigned a video image;  
computer code for determining an amount of mismatch between  
20 the new video image and the at least one video image from each channel; and  
computer code for assigning the new video image to a channel having the lowest mismatch.
35. The computer program product according to claim 34, further comprising:  
computer code for discarding the new video image if the lowest mismatch  
25 is above a discard threshold rather than assigning the new video image to a channel.
36. The computer program product according to claim 32, further comprising:

computer code for comparing a third video image to the first and the second video images to determine a first and a second mismatch;

computer code for assigning the third video image to a third channel if the first and second mismatches are above a mismatch threshold.

5 37. The computer program product according to claim 32, further comprising:

computer code for comparing a third video image to the first and the second video images to determine a first and a second mismatch;

computer code for assigning the third video image to the channel associated with the lower mismatch if the first mismatch and second mismatches are below a mismatch threshold.

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38. The computer program product according to claim 32, further comprising:

computer code for comparing a third video image to the first and the second video images to determine a first and second mismatch;

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computer code for discarding the third video image if both the first and the second mismatches are above a discard threshold.

39. The computer program product according to claim 32, wherein each channel is associated with a camera.

40. The computer program product according to claim 29, further comprising:

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computer code providing a user interface for entering the number of cameras.

41. A computer program product having computer code thereon for demultiplexing an image stream having a plurality of images, the computer code for use with a computer, the computer code comprising:

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computer code for comparing each new image within the image stream to a representative image associated with a camera to determine a mismatch value;

computer code for associating the new image with a new camera if each of the mismatch values are above a mismatch threshold.

42. A computer program product according to claim 41, wherein

5 computer code for selecting the lowest mismatch value and associating the new video image with the camera associated with the lowest mismatch value if any of the mismatch values are below the mismatch threshold.

43. A computer program product according to claim 42, further comprising:

computer code for discarding the new video image if the mismatch values are all above a discard level.

10 44. A computer program product according to claim 42, computer code for determining the total number of cameras after a predetermined number of video images are assigned to a particular camera.

45. The computer program product according to claim 29, wherein channel assignment is performed in real-time.

15 46. The computer program product according to claim 29, wherein the computer program parses the digital image stream and the video images are assigned to a channel in real-time.

47. The computer program product according to claim 29, further comprising computer code for sub-sampling the first video image and the second video image are prior to comparison.

20 48. The computer program product according to claim 29, further comprising computer code for identifying header information associated with video images and discarding the header information.

49. The computer program product according to claim 29, further comprising:  
25 computer code for providing a user interface for setting the mismatch level;  
computer code for receiving user input of the mismatch level.

50. The computer program product according to claim 29, further comprising:  
computer code for providing a user interface for setting the discard level;

computer code for receiving user input of the discard level.

51. The computer program product according to claim 43, further comprising:  
computer code allowing a user to assign a video image to a camera even  
though the mismatch is above the discard error level.

5 52. The computer program product according to claim 43, further comprising  
computer for allowing a user to select video images to discard prior to  
comparison.

53. The computer program product according to claim 41, wherein if a video  
image is associated with a camera and a new video image is also associated  
10 with the camera, the new video image becomes the reference image for all  
further comparisons.

54. The computer program product according to claim 41, further comprising  
computer code allowing a user to clear all reference images and to begin  
the process of assigning a reference video image to each camera.

15 55. The computer program product according to claim 54, further comprising:  
computer code for automatically adjusting brightness within the reference  
video images and the new video image so that brightness levels are  
substantially similar prior to comparison.

20 56. The computer program product according to claim 41, further comprising:  
computer code for selecting a portion of the reference images to be used  
for comparison to a same portion of the new video image.